

Studies on (1) the micropropagation and development of virus free plants of selected *Citrus* species and (2) the propagation of *Carica papaya* through *in vitro* shoot tip culture.

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ABSTRACT

Single nodal cuttings from the fourth and fifth axillary buds (counting from the base) of *Citrus tristeza virus* (CTV) positive lime (*Citrus aurantifolia*) (shoot length : 11 ± 1 cm) and lemonlime (*Citrus limon*) (shoot length : 15 ± 1 cm) were cultured on Murashige and Skoog, 1962 (MS) solid medium supplemented with 0.5 mg/L Benzylaminopurine (BAP), 0.5 mg/L Gibberellic Acid (GA₃) and 40 mg/L Adenine sulphate had less contamination (10%) and showed an average survival (70%) than those from shorter or longer shoots.

Multiple shoots were formed and six nodal stage shoots separated into single nodal cuttings. Counting from the basal node upwards the third and fourth nodal buds proved to be most efficient (90-100%) for multiplication.

An extended growth of the shoots were seen during the heat treatment : at 35°C, 24 h lights-on for 3 weeks.

Rooting was achieved on the liquid medium MS supplemented with 2 mg/L Naphthaleneacetic acid (NAA).

All the treatments tested for the indexing was negative for the presence of CTV.



In papaya, (*Carica papaya*) axillary buds from the lateral stems of mature field-grown plants were the explants.

Papaya side shoot tips (12 mm) from the main stem of mature field-grown plants were successfully established and multiplied on Murashige and Skoog (MS) solid medium supplemented with 0.5 mg/L BAP, 1.0 mg/L GA₃ and 40 mg/L Adenine sulphate.

Many axillary shoots of similar size were produced directly from the nodal regions of the expanded and elongated shoot tip during the initiation.

Within 4-6 weeks shoot clusters were separated and subcultured on a fresh medium with the same composition.

A significant improvement in shoot growth and multiplication was shown after third subculturing.

Juvenile shoot tips from the decapitated mature stems showed a success of (90%) whereas mature shoot tips did not show any success.

Rooting of microcuttings of length 1> cm was obtained on MS supplemented with 0.5 mg/L BAP, 1.0 mg/L GA₃, 4 mg/L Indole-3-butyric acid (IBA) with 40 mg/L Adenine sulphate and subsequent transfer to MS medium supplemented with 2 mg/L IBA with sterilized sandy loam soil : sand at 1:1 v/v.

